

"NEWS FLASH"

MIXED WASTE FOCUS AREA
SALT LAKE CITY CONFERENCE

On October 1, 2, 3, and 4, 1996 the Mixed Waste Focus Area (MWFA) held a meeting in Salt Lake City to close out FY96 activities and initiate FY97 activities. There were approximately 160 attendees this year. Several general meetings and technology reviews were presented during the four day period. The following articles will provide a summary for each meeting.

BUSINESS MEETING

The Business Workshop was an exciting and challenging meeting. It brought together Technical Program Officers (TPOs), Principal Investigators (PIs), Points-of-Contact for each waste type area, and the national program business team. The discussions provided excellent and much needed input to the focus area.

The workshop provided the attendees with a program overview and expectations in the areas of project management, performance reporting, program support, and communication for FY 1997. Each a key element to the successful completion of the Mixed Waste Characterization, Treatment, and Disposal focus area (MWFA) program.

Discussion concerning Program management centered on the application of knowledge, tools, and techniques to project activities in order to meet or exceed customer needs and expectations for a project. Meeting or exceeding those needs and expectations invariably involves balancing competing input in the following areas:

- Scope, time, cost, and quality.
- Stakeholders with differing needs and expectations.
- Identified requirements (needs) and unidentified requirements (expectations).

Primary points of discussion centered on project management knowledge, project phases, and progress tracking system.

- Project integration, scope, time, cost, quality, human resources, communication, risk, and procurements are execution processes to consider in the management of a project.
- Each project phase is marked by completion of one or more deliverables. A deliverable is a tangible, verifiable work product such as requirements document, test plan, a detailed design, or a working prototype. The conclusion of a project phase is marked by a review, these phase-end reviews are often called; phase exits, stage gates, or decision points.



- Progress tracking system (PTS) performance reports must organize and summarize the information gathered and present the results of any analysis. PTS reports should provide the kinds of information and the level of detail required by various stakeholders as documented in the program management plan.

The insight provided by the TPOs, PIs, and Points-of-Contact demonstrate an understanding of sound project management principles and a commitment to those principles and quality in FY 1997 performance reporting. The MWFA is looking forward to a very successful year and strong interaction with each of you. Keep those comments and letters coming.
<http://wastenot.inel.gov/mwfa>...THANK YOU.

REGULATORY MEETING

Personnel from several state regulatory agencies, EPA, DOE, Western Governors Association, and the Southern States Energy Board met to discuss and evaluate ways to provide earlier or more in depth involvement of regulatory agencies in DOE's technology development program for treatment of mixed waste. This informal regulatory working group was brought together as an experiment to obtain input as to how to best involve regulatory agencies in DOE's mixed waste technology development efforts.

The regulatory working group held a kickoff meeting Tuesday morning October 1 to discuss the week's agenda, what types of presentations should be expected, what was expected of them, and what the MWFA expected to achieve from having brought this group together. Throughout the two days of presentations, they were asked to take notes answering the following questions:

- 1) How does this technology support the permitting or operation of mixed waste treatment technologies;

- 2) What are the most important parameters to be identified, measured, or proven with respect to permitting or operating this technology;
- 3) Are there any parameters or concerns with the technology that you do not see being addressed;
- 4) Has your agency/site worked on permitting treatment systems utilizing this technology;
- 5) Other comments.

The responses are being compiled and will be sent back to authors for any further clarification. Once the authors have had a reasonable review of their comments, these comments will be distributed to people who presented information in Salt Lake City and to the MWFA staff.

While everyone found some interest in various parts of the meeting, there was general agreement that the closer the technology was to implementation in a particular state, the more involved they wanted to be. Some states were eager to participate in developing the requirements for technology development while others with limited funds were more reluctant to become involved that early in the process.

TECHNOLOGY REQUIREMENTS MEETING

A two-hour meeting was chaired by Bill Wca on Tuesday morning to discuss the MWFA expectations with regard to technical requirements in the FY97 development projects. The primary audience for this discussion was the FY97s and their respective TPOs. Bill explained the MWFA system for identifying end user needs, prioritizing them in the Technical Baseline, and documenting the specific end user technical requirements in Technology Development Requirements Documents (TDRDs). When the PIs prepared TTPs for FY97 work, they did so using the TDRDs as their technical guides.

LMITCO representatives presented detailed explanations of some of the documents and guidance which will be used by the MWFA to manage the FY97 projects to ensure the TDRD requirements are satisfied. Bill then reviewed the key technical management role that the Waste Type Managers (WTMs) and their technical staff have in working directly with the PIs. He urged the WTMs, the PIs and the TPOs to work closely together during the year to ensure successful development projects.

TRIBAL AND PUBLIC INVOLVEMENT MEETING

A planning and organizing session for the Technical Requirements Working Group (TRWG) was kicked-off at the MWFA's Salt Lake City meeting. Participants included individuals with experience dealing with Tribal and Stakeholder issues at each of the major DOE sites with mixed waste inventories.

The meeting familiarized participants with the focus areas itself, and with the concept of having a TRWG transform site-specific

issues, needs, and concerns into the technical requirements for technologies being developed to support the treatment of mixed waste. The TRWG's work will help ensure that technologies developed for managing mixed waste will be the most feasible ones for the largest number of sites.

Based on inputs obtained at the meeting, the following directions for the TRWG are currently being considered:

1. TRWG members will provide review and advice on how site-specific input is obtained. TRWG members may sit in on some of the interviews so that they can bring first-hand experience of the event back to the TRWG group as a whole.
2. "Stakeholder Principles" from the Integrated Non-thermal Systems Study (INTS) will be utilized to guide the group's input to technical requirements.
3. The TRWG will consist of multi-disciplinary members who have experience dealing with Tribal and Stakeholder issues, needs, and concerns. Members of the TRWG will be asked to perform a technical task for the national program rather than working as representatives of individual sites or organizations.

ANNUAL TECHNOLOGY REVIEWS

Two days of the conference were focused on presentations providing accomplishments for the various treatment technologies during FY96. The MWFA program would like to thank all participants for a job well done. Specific presentation material can be viewed on the MWFA home page at <http://wastenot.inel.gov/mwfa>. The presentations are listed according to the presentation day.

The following summaries provide FY96 technical highlights:

LEAD WASTE TREATMENT

A Cooperative Agreement has been established between DOE-ID and Envirocare of Utah, Inc., for treatment and disposal of 500,000 lbs of mixed waste lead and debris. Under the Cooperative Agreement, polymicroencapsulation, a DOE-developed technology, will be transferred to the private sector for implementation. Macroencapsulation completely coats lead and debris with a thick layer of low density polyethylene to render the material safe to the environment. The macroencapsulated waste is then disposed in the Envirocare facility at South Clive, UT. Waste streams from approximately 20 sites will be eliminated from the DOE mixed waste inventory under this Cooperative Agreement. To date, approximately 386,000 lbs has been shipped to Envirocare, 115,000 lbs has been macroencapsulated, and 94,000 lbs have been disposed. The Cooperative Agreement will be completed by the end of the March 1997.

QUICK WINS

The FY96 MWFA Quick Win Program has been very successful. Under this program, short term projects are initiated that lead to expedited demonstration and/or implementation of mixed waste treatment technologies. During FY96, 19 Quick Win projects were initiated, which will result in the elimination of over 25 waste streams, comprising almost 100 cubic meters of mixed waste. Two notable projects include the Base Hydrolysis at Pantex and

Terra-Kleen at Fernald. The Base Hydrolysis provides an alternative, non-thermal process for treating tritium-contaminated high explosives (HE). Eventual full implementation of this process will provide treatment for 60,000 lbs of HE generated annually at the Pantex Plant. The Terra-Kleen Solvent Extraction process uses a proprietary, non-hazardous solvent to remove organic and poly-chlorinated biphenyl contaminants from mixed waste debris and soil. The demonstration supported by the MWFA will lead to a subcontract between Fernald and the vendor for treatment of approximately 500 cubic meters of DOE mixed waste. In addition, this Quick Win provided the first demonstration under the Rapid Commercialization Initiative, a Presidential initiative.

DRUM TESTING ROBOTICS

In a joint effort between the MWFA, Robotics Crosscut Program, and Industrial Programs, two automated RCRA inspection vehicles have been developed and are ready for demonstration at two host sites, INEL and LANL. The Intelligent Mobile Sensor System (IMSS) will be demonstrated at the INEL during December 1996, and then implemented based on the results of the demonstration. The Automated Robotic Inspection and Examination System (ARIES) will be demonstrated at LANL in March 1997, and subsequently implemented. These systems will provide for more thorough inspections of drummed waste, with the capability to identify active corrosion prior to container failure, while greatly reducing the exposure to workers.

CHARACTERIZATION

Two technologies made significant technical progress in FY96: the Combined Thermal Epithermal Neutron (CTEN) system and the Active and Passive Computed Tomography (A&PCT).

The CTEN system will perform all of the functions of currently used NDA systems but with the added capabilities. Those capabilities include being able to identify and assay lumps of fissile material, the capability to perform neutron multiplicity measurements, providing an increase in active neutron detection efficiencies, and the capability to detect non-uniform matrices and SNM distributions. With the increase in accuracy of NDA measurement, drums can be characterized with more confidence resulting in more accurate MTRU or MLLW designation and a reduction in the number of drums requiring repackaging.

The A&PCT system combines both the active and passive measurement modes to identify and quantify all gamma ray emitting radioisotopes within a container. By moving the drum in well-known and accurately reproducible positions, the container contents are mapped and can then be reconstructed by computer into images. This technology will improve the accuracy of isotopic identification of TRU and fission product materials within containers. With the increase in accuracy of these measurements, DOE can differentiate between MTRU and MLLW, reducing the number of drums requiring repackaging.

HIGH TEMPERATURE THERMAL TREATMENT

Three key high-temperature thermal treatment systems are funded by the MWFA: the Graphite DC Arc Melter, the Plasma Hearth Process (PHP), and the Transportable Vitrification System (TVS). High temperature thermal processes have the potential to treat a wide range of mixed wastes while minimizing the need for pretreatment sorting, reducing the final waste volumes, producing a leach resistant waste form, and destroying organic contaminants. The Graphite DC Arc Melter and the PHP systems have been shown capable of producing durable waste forms using a variety of non-radioactive surrogate debris and sludge materials. Radioactive pilot plant systems were installed in FY97 for each process. The pilot plants will be used to perform radionuclide partitioning studies and verification tests of the

systems. Both projects are collaborating in the development of test plans and work scope to ensure that duplication of effort does not occur. During the Salt Lake City conference, the plasma torch life extension work was also introduced and objectives will be developed in collaboration with both PHP and several plasma torch manufacturers.

The Transportable Vitrification System (TVS) is ready to demonstrate treatment of Mixed Waste at Oak Ridge with the exception of modifying the feed delivery system, and changing some of the off-gas monitoring instrumentation. At the time of the Salt Lake City meeting, the TVS was still awaiting approval from the State of Tennessee in regards to a temporary Part B permit for treating this waste. The authorization was received on October 14th, but issues as to whether or not more restrictive MACT rules will apply still require resolution.

The TVS demonstration will allow for the treatment of 80,000 lbs of Oak Ridge waste, which will meet a state consent order. Additional funding has been requested to resolve technical issues in regard to recently identified problems associated with sulfates and organics in the feed. In addition, other options are being considered.

OFF-GAS TREATMENT

The mercury filter development work being performed by ADA Technologies under subcontract to Sandia Laboratory of California has been redirected to concentrate more on fundamental development of its durability and commencement of testing at the 50 acfm prototype level. This redirection is more in line with the MWFA request for comprehensive durability data and may negate the need for 1,000 acfm scale testing.

NON-THERMAL TREATMENT

Development of chemically bonded phosphate ceramics (CBPC) as a stabilization/immobilization method for sludges and soils, is currently being performed by ANL-E. FY97 goals for the CBPC process include:

- 1) the demonstration of the process on an actual waste stream;
- 2) scale-up the process to a 55 gallon capacity; and
- 3) integration of the process with that of RMI's harmonic compactor.

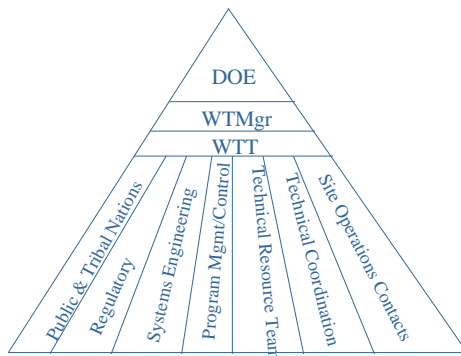
Additional funds may be added to this TTP to ensure integration of the CBPC work with similar work performed by the Russian program.

The MWFA initiated the Non-Thermal Technology Treatment Project (NT₃) in late FY96. This project, which is being pursued at the recommendations of the Western Governor's Association (WGA) Mixed Waste Solicitation Subgroup, is focused on incorporating stakeholder involvement in all aspects of the selection and demonstration of a non-thermal treatment system to process mixed waste. Working with representatives from the WGA, and METC, the MWFA selected Rocky Flats Environmental Technology Site as the host site for the demonstration. The team of Rocky Flats, METC and MWFA is presently working to develop the vendor scope of work which is anticipated to be issued in a formal Request for Proposal in early 1997.

FISCAL YEAR 1997 VISION

The MWFA is dedicated to the implementation of a program that is well managed, integrated, and technically defensible that the public and tribal representatives, regulators, and end-users will advocate its approach and implement the resulting technologies. The key aspects for FY 97 are:

- It is MWFA's job to enable technologies, which leads to the Office of Science and Technology's vision of "Implementation is the Measure of Success".
- The MWFA will be managerially and financially in control.
- The MWFA has a requirements based approach and the requirements are defined by end-users, regulators, public, and tribal nation entities.
- The MWFA will use a team approach (see diagram below)



The team approach incorporates all the various areas of the MWFA program. In addition, each primary DOE site within the DOE Complex has a Site Technology Coordination Group (STCG). The STCGs consolidate and prioritize their site technology needs. The STCGs provide the primary communication between the site they represent and the MWFA team. There are many organizations external (industry and universities) to the MWFA from which assistance may be sought relative to basic research. All of the areas must work together to successfully accomplish the MWFA's mission.

Congratulations on a job well done. Through the support of the entire MWFA team the program review was a great success. The success of this meeting reflects a commitment of the entire team over the last year and a half. It is apparent that these efforts have culminated in a sound technology development program that will ensure the goal of mixed waste treatment and disposal can be attained.

The technical presentations of the Waste Type Managers and Principal Investigators were very informative and well executed. The technical working sessions were a good example of productive team work. The support and interest demonstrated by stakeholder and regulatory representatives and Technical Program Officers throughout the week indicates a willingness to work together to successfully achieve a common goal. The MWFA looks forward to a successful and mutually productive year.